

# GOW-MAC Series 600 Gas Chromatograph (GC)

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Instrument instructions can be found at:

<http://academic.bowdoin.edu/chemistry/resources/instructions.shtml>

If you have any problems with the instrument or would like to get trained, please contact Celeste

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## 1. Protocol

- a. **Read instructions carefully before using instrument.** Reading the bold sentences in each category will tell you what you need to know to run the instrument.
  - i. Bullets are under the bold sentences when more detail is required.
  - ii. At the end of the instructions is a frequently asked questions/troubleshooting section.

## 2. Method Development

- a. **Methods are developed using the Edit soft key on the Home page.**
- b. **Depress the Edit key.** You will be presented with a choice of what part of the method to edit. Timed events are set outside the analytical period; these must be set up separately.
- c. **Use the --> key to move the arrow to chromatography method, press Do This.**
- d. **The screen will now show the equipment available for your method.**

## 3. Isothermal Run

- a. **Move the --> to Detector 1, press Do This.**
- b. **Move the --> key to Detector Temperature, use the Up and Down keys to change the temperature.** Press Accept when the desired temperature is reached.
- c. **Move the --> to Injector 1 on the Edit Chromatography screen and press Do This.**
- d. **Use the Up and Down keys to set the desired temperature.** Press Accept when done.
- e. **Select the Column Oven setting with the --> key and press Do This.**
- f. **When the screen changes select Isothermal and press Do This.** Use the Up and Down keys to raise and lower the oven temperature. When the desired temperature is reached press Accept.
- g. **Press Home on the Main screen.**
- h. **To turn on the heaters, press Action on the Home page.** When the action screen comes up select Heat On.
- i. **Monitor the temperature from the status screen found on the Home page.**

## 4. Temperature Programmed Run

- a. **Selecting Temperature Programmed presents you with a series of two menus.**
- b. **The first menu will ask you for an initial temperature and time.** The initial time is the time the oven will stay at the initial temperature after the run has started.

- c. **With the --> alongside Initial Temperature use the Up and Down keys to set the required temperature.** Now move the --> alongside the Initial Time and use the Up and Down arrows to set the desired time.
- d. **When they are at the desired values, press Accept.**
- e. **The next screen will ask for the program parameters.** The GC is capable of doing a 10 segment ramp. The segments are divided on two screens. The second screen can be reached by pressing Accept. The temperature program will terminate after the last segment with a nonzero value. It will also terminate if the ramp rate for the next segment is set to zero, regardless of what follows.
- f. **Move the --> to Ramp Rate in segment 1, use the Up and Down keys to set the first required rate.**
- g. **Use the --> key to point to upper temperature.** Set this with the Up and Down keys.
- h. **The next press of the --> key advances to segment 2.** If you wish only one ramp make sure the ramp rate for segment 2 is zero.
- i. **When the program is set, press Accept until the Edit screen appears.**

## 5. Saving a Method

- a. **When the method is complete, press the soft key Save on the Edit page.**
- b. **You will be presented with a menu which will allow you to save your new method.**
- c. **First, use the Up and Down keys to select the method number under which the method is to be stored.** When this number is chosen press Accept.
- d. **Next move to the name field.**
- e. **Use the Up, Down, and Accept keys to name the method.** Set the characters using the Up and Down keys and when correct, press the Accept key to move to the next space.
- f. **Now press the Save soft key.** You will be asked to overwrite an existing method. Proceed by pressing Save.

## 6. Retrieving a Method

- a. **To retrieve a stored method, press the soft key Retrieve on the Edit page.**
- b. **A list of stored methods will appear.** Use the soft keys to locate the method you would like to retrieve. When it is selected, press Retrieve.
- c. **The selected method is loaded and becomes active.**

## 7. Running a Method

- a. **Turn the heat on by pressing Home.** Then press the Action soft key followed by the Heat On key.
- b. **Once a method has been created or retrieved and the heat turned on, the GC starts toward the parameters called for in that method.**
- c. **During this period the *Not Ready* signals is displayed at the top left of the screen.**
- d. **As soon as the GC is ready for an injection, the *Ready* message will appear in the top left of the screen.**
- e. **You are now ready to make an injection and initialize a run by pressing the "Run" key on your Action page.**

## 8. Running a Method When Not Ready

- a. When you want to start a run even though the GC is not ready, you can from the Action page. There are three soft keys on the Action page.
  - i. Run – identical in operation to the Run key.
  - ii. R/C (Run Confirm) – is similar to the run key, except that pressing the Run soft key first and then the R/C will start the GC whether the system is ready or not.
  - iii. Shutdown – this button is used to cool the oven down in a controlled way. That is, the fans remain running, the vent door is open, and the heaters and detectors are turned off.
- b. Therefore, to start a run when the GC is not ready, first go to the Action page, then press the Run key, followed by the R/C key.

## Integrator Functions

**LIST LIST** – lists current run parameters.

**REA ENTER** – checks system readiness.

**SY ENTER** – lists current system configuration.

**START** – starts run.

**PLOT** – starts plot without integration.

**STOP** – stops run or plot.

**[SHFT] SEQ START** – Starts a sequence of runs.

**CHT SP 1 ENTER** – sets chart speed to 1 cm/min.

**[SHFT] ENTER** – advances the paper continuously.

**LIST TIME ENTER** – lists all current timetable entries.

**TIME .5 CHT SP 7 ENTER** – sets chart speed to 7 cm/sec at 0.5 minutes into the run.

**DEL TIME ENTER** – deletes entire timetable.

**DEL TIME 1 ENTER** – deletes all entries for 1 min.

**[SHFT] PREP [SHFT] METH** – prepares a method step by step.

**[SHFT] EDIT [SHFT] METH** – edits an existing method.

**[SHFT]** – press the “Shift” key.

**BOLD** words indicate a key that is pressed.

Everything else is typed in using the keypad.

Adapted from Series 600 Gas Chromatograph User’s Manual by GOW-MAC Instrument Co. 1995.

Adapted from HP 3395 Integrator Operating Manual by Hewlett Packard. 1997.